

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN FRANCISCO BAY REGION

ORDER NO. R2-2002-0105

REVISED SITE CLEANUP REQUIREMENTS FOR:
UNITED STATES DEPARTMENT OF THE NAVY
AND LENNAR MARE ISLAND, LLC
for property located at the
Former MARE ISLAND NAVAL SHIPYARD
VALLEJO, SOLANO COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter Board), finds that:

1. **Site Location:** Mare Island Naval Shipyard (MINSY) is located along the western limit of the City of Vallejo, in southwestern Solano County (as shown on Attachment A). It is approximately 30 miles northeast of San Francisco in the North Bay subregion of the San Francisco Bay Area. Mare Island was historically an island but through land reclamation activities by the United States Department of the Navy (Navy), it is now a peninsula approximately 3.5 miles long and 1.25 miles wide. MINSY covers approximately 5,460 acres; 1,650 acres are developed uplands and the remaining acreage is tidal and non-tidal wetlands. Mare Island is bounded on the east by the Mare Island Strait of the Napa River, on the south by the Carquinez Strait, and on the west by San Pablo Bay. To the north, Mare Island is approximately bounded by Highway 37, the Napa Marsh, and the San Pablo Wildlife Refuge. MINSY is within the boundaries of the City of Vallejo but is separated by the Napa River from the downtown area of Vallejo except for two small parcels of property. The first parcel is located at the corner of Tennessee Street and Wilson Avenue and provides the main entrance to the installation via a causeway. The second parcel is the MINSY rail line property that runs through the northern downtown area of the City of Vallejo.
2. **Site History:** MINSY was the first naval station established on the Pacific coast. The Navy purchased 956 acres of land in 1853 and commenced shipbuilding operations in 1854. Industrial activities related to ship building occurred primarily along the northeast shore of Mare Island. Schools, training facilities, residences, and other activities that supported the Navy's mission were established at various locations on Mare Island in the ensuing years. Throughout its history as shipbuilding technologies advanced, the entire shipyard underwent significant transformations and the use of industrial chemicals and oils increased

with these changes. MINSY reached its peak capacity for shipbuilding, repair, overhaul, and maintenance during World War II employing over 40,000 workers and constructing nearly 400 ships.

In addition to the industrial activities, the Navy has conducted extensive dredging projects. Starting in the 19th century frequent dredging of the east side of the waterfront adjacent to Mare Island along Mare Island Strait was required to maintain shipping lanes. In this era, significant Sierra mining material traveled downstream and was deposited in San Pablo Bay. Sediments settled out of the water and tended to accrete along the western shoreline in the absence of major streams or sloughs on the western side of Mare Island.

In 1907, the Navy constructed a dike at the south end of the island to reduce the amount of sediment in San Pablo Bay that could be flushed back into Mare Strait with the tide. As a result, sediment accretion along the western shoreline of Mare Island increased, and the island mudflat expanded.

The Navy constructed levees in the mudflat areas along the western shoreline to hold dredge spoils pumped from Mare Island Strait. Large areas of land were reclaimed by filling ponds to the north, west, and south sides of the shipyard with spoils from frequent dredging in the ship channel and pier areas.

The region north of the original island was historically an area of tule marshes. Much of the land area between A Street and Causeway Street was filled with materials excavated during early construction in the original shipyard, such as dry dock excavation and land grading in the area referred to as Dublin Hill (near the northern end of the original island). The land farther north of Causeway Street was primarily reclaimed by filling with dredge spoils and materials from the shipyard.

In addition to shipbuilding, ammunition was manufactured and/or stored at Mare Island throughout most of its naval history. Locations for manufacturing, storing, and handling ordnance were mainly restricted to the southeastern quarter of Mare Island, safely away from the shipyard and residential areas.

The Navy disposed of unwanted ordnance in a variety of ways at Mare Island. Various munitions or components of munitions were disposed at the open burn/open detonation range, in which explosive items were detonated with donor explosive charges, and this has likely resulted in some components being scattered across the range, nearby land areas, and waters. Other munitions were disposed by direct burial at manufacturing and storage sites. Munitions were also disposed directly into Mare Island Strait and the south shore Carquinez Strait area from land, piers, wharves, and vessels. Periodic maintenance dredging in some of these areas carried munitions items to the dredge ponds on Mare Island. In cases where munitions have been recovered from Mare Island, deterioration of the

components has been observed; however, some recovered munitions have been live and potentially dangerous.

In 1993, MINSY was identified for closure during the Base Realignment and Closure (BRAC) process. Naval operations ceased and the facility was decommissioned on April 1, 1996. Since that time, the Navy has leased property to the California Conservation Corps, Touro University, and numerous other commercial and industrial businesses. The Navy has transferred environmentally clean properties including Roosevelt Terrace (a residential parcel), the golf course (parcel X), open space (parcel VII-A), a light industrial area (parcel XV-A), the roadway entering Mare Island (parcel XXI-A), and a rail line to the City of Vallejo for redevelopment. Presently, MINSY has approximately 960 buildings representing approximately 10.5 million square feet of industrial, office, residential, commercial, and recreational facilities.

Under revised environmental regulations, the Navy has transferred property where the investigation and/or clean up has not been completed to the satisfaction of the regulatory agencies.

3. **Site Hydrogeology:** MINSY is relatively flat and varies in elevation from sea level to 285 feet above sea level in the southern area of the peninsula. Groundwater at the MINSY occurs within unconfined, unconsolidated alluvial materials and within bedrock units. Groundwater generally flows radially outward from the center of what was historically Mare Island. Hydraulic conductivities measured from slug tests ranged between 1.3 and 22.0 feet per day. In the southern area, the unconfined alluvial aquifer rests on top of eroded and fractured basement rock. The depth to groundwater ranges between 3 feet and 15 feet below ground surface. Total dissolved solids concentrations range from below 3000 ppm on the south end of MINSY to over 10,000 ppm towards the northeast boundary of the property.
4. **Environmental Concerns:** In 1996, the Navy completed the "The Final Basewide Environmental Baseline Study / Community Environmental Response Facilitation Act Report." The following sources and/or potential sources of pollution were identified: landfills, military munitions, radioactive materials, Underground Storage Tanks (USTs), fuel distribution pipelines, oil sumps, polychlorinated biphenyls, lead-based paint, asbestos-containing materials, radon, pesticides, herbicides, metals, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and petroleum.
5. **Regulatory Status:** On July 15, 2002, the Navy; the State of California Environmental Protection Agency, Department of Toxic Substances Control (DTSC); and the Board (collectively, the Parties), entered into a revised Federal Facility Site Remediation Agreement (FFSRA) for MINSY. The agreement was to facilitate full cooperation among the agencies in accelerating and streamlining

the remediation process at MINSY to the maximum extent possible consistent with applicable state and federal laws.

Pursuant Section 120(h)(3)(c) of CERCLA, the Navy intends to transfer or has transferred property parcels where remedial action has not been completed to the satisfaction of the regulatory agencies or as required under CERCLA, and the remedial action will be performed by an acquiring party.

In the FFSRA, the Board has agreed to suspend the Navy's obligations with respect to petroleum USTs and petroleum contaminated sites where a third party complies with Board Orders requiring cleanup of these sites subject to early transfer. Nevertheless, the Navy retains ultimate responsibility for the cleanup of these sites. If a third party fails to adequately comply with such Orders, the Navy and the Board shall meet and confer to resolve remaining remediation needed on the transferred property.

6. **Revision of Prior Order:** On November 29, 2000, the Board adopted Order No. 00-132, naming the Navy as a discharger, and specifying that it should subsequently be revised to name any acquiring parties of the property. The Board therefore intends this Order to revise Order No. 00-132, and add Lennar Mare Island (hereinafter LMI) as a discharger with respect only to that portion of the property known as the Eastern Early Transfer Parcel (hereinafter EETP), which is identified in Attachment B. The Board intends, however, only to require of and enforce against LMI only those obligations it has assumed for the Navy and the City of Vallejo pursuant to the Environmental Services Cooperative Agreement (ESCA) and Mare Island Remediation Agreement (MIRA) applicable to the EETP.
7. **Named Discharger:** The Navy is the discharger because it owns the property and owned the property during the time of the activities that resulted in the discharges. The Navy had knowledge of the discharge or the activities that caused the discharge, and had the legal ability to prevent the discharge. LMI is named a discharger because it now owns the property known as the EETP, identified on Attachment B, on which there is a continuing or threatened discharge of waste. Further, LMI is named to the extent that it has assumed the obligations of the Navy and the City of Vallejo pursuant to the ESCA and MIRA applicable to the EETP.
8. **Acquiring Parties Shall Be Named to the Order as Appropriate:** In the event of future property transfers at MINSY that include petroleum pollution, the Executive Officer shall amend this Order to name the new owners as appropriate.
9. **Purpose:** This Order clarifies the Board's regulatory authority and intentions. This Order establishes that the Navy will maintain long-term liability for all cleanup, i.e. both non-petroleum and petroleum, of the property transferred prior

to completion of cleanup; and notifies any party or parties who acquire parcels of property at MINSY, transferred prior to completion of cleanup, that the Executive Officer shall, as appropriate, name such acquiring parties to this Order for the parcel(s) of property they acquire. With respect to the EETP, this Order sets forth the obligations of LMI and how those obligations will be performed in conjunction with LMI obligations under the Consent Agreement between DTSC, the City of Vallejo and LMI dated April 16, 2001.

This Order also requires a schedule of petroleum cleanup actions for property (ies) proposed for transfer prior to cleanup to insure that the transfer of the property (ies) does not substantially delay any necessary response actions. DTSC is expected to be the lead agency in overseeing cleanup of the non-petroleum pollution and establishing the specific schedule of such cleanup actions. However, in the event DTSC cannot satisfactorily address the Board's water quality concerns, the Board may exercise its authority to insure the protection of the quality of waters of the State.

10. **EETP and the DTSC Consent Agreement:** With respect to the EETP, the Board recognizes that the Consent Agreement between DTSC, the City of Vallejo and LMI dated April 16, 2001 ("DTSC Consent Agreement") subdivides the EETP into eight (8) Investigation Areas (IAs) (as shown on Attachment B) and sets forth a comprehensive process whereby LMI is required to perform necessary investigation and remedial action with respect to each of those IAs, including actions with respect to the underground storage tanks and the fuel oil pipeline segments that are the subject of this Order. The Board agrees that LMI's obligations pursuant to this Order should, to the maximum extent practicable, be performed in conjunction with its obligations pursuant to the DTSC Consent Agreement.

- (a) Therefore, the Board recognizes that the only petroleum sites at the EETP to which this Order applies, and for which LMI is responsible, are petroleum underground storage tanks, the fuel oil pipeline segments, and any potential site not identified in the DTSC Consent Agreement that is contaminated only with petroleum or petroleum constituents.
- (b) The Board acknowledges, as has DTSC in Section 4.22 of the DTSC Consent Agreement, that LMI will not be obligated pursuant to this Order to perform environmental services with respect to conditions that remain the responsibility of the Navy pursuant to the ESCA ("Navy-Retained Conditions"), such as wetlands, sediments, and remediation costs exceeding the funds made available pursuant to the ESCA and the insurance policies procured with those funds.

(c) There may be areas within the EETP where there are identified areas of contamination subject to this Order whose boundaries are split between areas within the EETP and areas outside the EETP. Where there is contamination from a specific source located within the EETP, LMI is responsible for investigating and remediating it even if the contamination from that source migrates beyond the boundaries of the EETP. Likewise, if there is contamination from a specific source located outside of the EETP, LMI is not responsible for investigating or remediating it if it migrates onto the EETP. In the event that contamination for which LMI is not responsible has been commingled with contamination for which LMI is responsible, the Board will evaluate and determine responsibility for taking the necessary investigatory or remedial actions after meeting with the responsible party or parties.

11. **Other Board Regulatory Actions:** This site is also subject to Board orders, as identified below, that address previous operations and activities that are not affected by this Site Cleanup Requirements Order:
 - Waste Discharge Requirements (Order No. 97-100 adopted on August 20, 1997);
 - NPDES Permit (Order No. 96-156 adopted on November 20, 1996);
 - Cease And Desist Order (Order No. 89-088 adopted on May 17, 1989);
 - Waste Discharge Requirements (Order No. 87-170 adopted on December 16, 1989);
 - Cleanup And Abatement Order (Order No. 85-019 adopted on September 18, 1985).
12. **Land-Use Management:** Land use restriction from the time of transfer to the time of final cleanup, if necessary, must be provided to protect human health and the environment from existing pollution.
13. **Remedial Investigations:** The Navy has performed remedial investigations for a limited number of identified polluted sites within each parcel proposed for transfer.
14. **Interim Remedial Measures:** When polluted sites are transferred before cleanup is completed, an investigation may be necessary to determine if Interim Remedial Measures should be implemented at those sites to reduce the threat to water quality, public health and the environment posed by the discharge of waste and to provide a technical basis for selecting and designing final remedial measures.
15. **Adjacent Sites:** When polluted sites are transferred before cleanup is completed, the source of pollution under the boundary of the sites must be determined. Those

sources and their accompanying plumes should be cleaned up in a manner that does not adversely affect the cleanup of pollution on the adjacent sites.

16. **Basin Plan:** The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on June 21, 1995. This updated and consolidated plan represents the Board's master water quality control planning document. The revised Basin Plan was approved by the State Water Resources Control Board and the Office of Administrative Law on July 20, 1995, and November 13, 1995, respectively. A summary of regulatory changes is contained in 23 CCR 3912. The Basin Plan defines beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. MINSY is located within the Napa-Sonoma Valley Groundwater Basin.

The existing and potential beneficial uses of groundwater underlying and adjacent to the site include:

- a. Municipal and domestic water supply;
- b. Industrial process water supply;
- c. Industrial service water supply;
- d. Agricultural water supply; and
- e. Freshwater replenishment to surface water.

The existing and potential beneficial uses of Napa River, San Pablo Bay and contiguous surface waters include:

- a. Cold freshwater habitat;
- b. Commercial and sport fishing;
- c. Estuarine habitat;
- d. Industrial service supply;
- e. Fish migration;
- f. Navigation;
- g. Preservation of rare and endangered species;
- h. Water contact recreation;
- i. Noncontact water recreation;
- j. Shellfish harvesting;
- k. Fish spawning;
- l. Warm freshwater habitat; and
- m. Wildlife habitat.

17. **Other Regional Board Policies:** Board Resolution No. 88-160 allows discharges of extracted, treated groundwater from site cleanups to surface waters only if it has been demonstrated that neither reclamation nor discharge to the sanitary sewer is technically and economically feasible.

18. **State Water Board Policies:** State Water Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," applies to this discharge and requires attainment of background levels of water quality, or the highest level of water quality which is reasonable if background levels of water quality cannot be restored. Cleanup levels other than background must be consistent with the maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial uses of such water, and not result in exceedence of applicable water quality objectives.

State Water Board Resolution No. 88-63, "Sources of Drinking Water," defines potential sources of drinking water to include all groundwater in the region, with limited exceptions for areas of high TDS, low yield, or naturally occurring high contaminant levels.

State Water Board Resolution No. 92-49, "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under Water Code Section 13304," applies to this discharge. This Order and its requirements are consistent with the provisions of Resolution Nos. 68-16 and 92-49, as amended.

19. **Preliminary Cleanup Goals:** DTSC is the State's lead agency in overseeing cleanup of the site except for the cleanup of petroleum pollution for which the Board is the lead agency. DTSC is expected to follow the CERCLA cleanup procedures and nothing in this Order makes the cleanup levels less stringent than the cleanup levels required under those procedures.
20. **The Board's past experience with groundwater pollution** cases of this type is that it is unlikely that all background levels of water quality can be restored. Under Resolution 92-49 and California regulations, however, no cleanup standards may be set at a level higher than background levels unless or until the following findings can be made and supported by evidence presented to the Board:
- a) that it is technologically or economically infeasible to achieve background level, and
 - b) that the pollutant will not pose a substantial present or potential hazard to human health or the environment for the duration of the exceedence of background levels.
21. **Pending the establishment of site-specific cleanup standards**, the following preliminary cleanup goals should be used for these purposes:
- a. **Groundwater:** The more stringent of background concentrations or applicable water quality objectives (e.g. maximum contaminant levels, or MCLs) or, in the absence of a chemical-specific objective, risk-based

levels (e.g. drinking water equivalent levels) or toxicity testing for aquatic receptors to reflect impacts to surface waters.

- b. **Soil:** The more stringent of background concentrations or basin plan limits that are not to exceed 1 mg/kg total volatile organic compounds (VOCs), 10 mg/kg total semi-volatile organic compound (SVOCs) or appropriate background concentrations of metals.
- 22. **Basis for 13304 Order:** The Navy and LMI have caused or permitted, causes or permits, or threatens to cause or permit waste to be discharged or deposited where it is or probably will be discharged into waters of the State and creates or threatens to create a condition of pollution or nuisance. Furthermore, LMI has acquired ownership of the EETP and has agreed to assume responsibility for achieving regulatory closure of the EETP pursuant to the ESCA and MIRA.
- 23. **Federal Waiver of Sovereign Immunity:** The Federal government has waived its sovereign immunity for the UST sites subject to this Order under Title 42, Chapter 82, Subchapter IX, Section 6991f, of the United States Code.
- 24. **Cost Recovery:** Pursuant to California Water Code Section 13304, the Navy and LMI are hereby notified that the Board is entitled to, and will seek reimbursement for, all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order.
- 25. **CEQA:** This action is an order to enforce the laws and regulations administered by the Board. As such, this action is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to Section 15321 of the Resources Agency Guidelines.
- 26. **Notification:** The Board has notified the Navy, LMI, and all interested agencies and persons of its intent under California Water Code Section 13304 to prescribe site cleanup requirements for the discharge, and has provided them with an opportunity to submit their written comments.
- 27. **Public Hearing:** The Board, at a public meeting, heard and considered all comments pertaining to this discharge.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code, that the United States Department Of The Navy (or its agents, successors, or assigns), and LMI only with respect to the EETP, shall cleanup and abate the discharges described in the above findings as follows:

A. PROHIBITIONS

1. **DISCHARGE OF WASTE:** The discharge of wastes or hazardous substances in a manner that will degrade water quality or adversely affect beneficial uses of waters of the State is prohibited.
2. **POLLUTION MIGRATION:** Further significant migration of wastes or hazardous substances through subsurface transport to waters of the State is prohibited.
3. **POLLUTION MIGRATION CAUSED BY INVESTIGATION AND REMEDIATION:** Activities associated with the subsurface investigation and cleanup, which will cause significant adverse migration of wastes or hazardous substances, are prohibited.

B. TASKS FOR PARCELS TO BE TRANSFERRED FROM THE NAVY BEFORE CLEANUP IS COMPLETED, EXCLUDING THE EETP, TO BE UNDERTAKEN BY THE NAVY OR FUTURE RECIPIENTS OF EARLY TRANSFER PARCELS:

1. IDENTIFICATION OF SOURCES

COMPLIANCE DATE: At Least 30 Days Before Proposed Date of Property Transfer

Submit a report, acceptable to the Executive Officer, of all known sources of pollution on the sites to be transferred, including the location, chemicals of concern, concentrations and the extent of the plumes. Also, submit a list, acceptable to the Executive Officer, of all areas where all sources of pollution have not been identified and further assessment and/or investigation of the area is needed. This task shall be required of the Navy if and only if additional early transfer(s) of property containing petroleum pollution are proposed for MINSY.

2. WORKPLAN TO IDENTIFY REMAINING UNKNOWN SOURCES

COMPLIANCE DATE: Within 60 Days After Date of Recordation of the Deed

Submit a workplan, acceptable to the Executive Officer, to inventory chemicals used and to identify all pollution sources on all the areas identified in B.1. above, where all sources of pollution have not been identified and further assessment and/or investigation of the area is needed, including chemical storage areas, sumps, underground tanks, utility lines, and related facilities.

3. COMPLETION OF REMAINING SOURCE IDENTIFICATION

COMPLIANCE DATE: Within 60 Days After Task B.2. Compliance Date

Submit a technical report, acceptable to the Executive Officer, documenting completion of necessary tasks identified in the Task B.2. workplan. The technical report should identify confirmed and possible sources of pollution.

4. WORKPLAN FOR REMEDIAL INVESTIGATION OF PETROLEUM POLLUTION

COMPLIANCE DATE: Within 30 Days After Task B.3. Compliance Date

Submit a workplan, acceptable to the Executive Officer, to define the vertical and lateral extent of soil and groundwater petroleum pollution down to concentrations at or below typical cleanup standards for soil and groundwater. Such standards may be based upon the December 2001 update to Risk-Based Screening Levels for Impacted Soil and Groundwater (Board staff, December 26, 2001). The workplan should specify investigation methods and a proposed time schedule.

5. COMPLETION OF REMEDIAL INVESTIGATION OF PETROLEUM POLLUTION

COMPLIANCE DATE: Within 120 Days After Task B.4. Compliance Date

Submit a technical report, acceptable to the Executive Officer, documenting completion of necessary tasks identified in the Task B.4. workplan.

6. INTERIM REMEDIAL ACTION WORKPLAN FOR PETROLEUM POLLUTION

COMPLIANCE DATE: Within 30 Days After Task B.5. Compliance Date

Submit a workplan, acceptable to the Executive Officer, to evaluate interim petroleum pollution remedial action alternatives and to recommend one or more alternatives for implementation. Work may be phased to allow the investigation to proceed efficiently. If groundwater extraction is selected as an interim remedial action, then one task will be the completion of an NPDES permit application for discharge of extracted, treated groundwater to waters of the State. The application must demonstrate that neither reclamation nor discharge to the sanitary sewer is technically or economically feasible. (Note: the NPDES permit application for most discharges will be a "notice of intent" to be covered by the VOC general permit, consistent with CERCLA regulations)

7. COMPLETION OF INTERIM REMEDIAL ACTIONS FOR PETROLEUM POLLUTION

COMPLIANCE DATE: Within 90 Days After Task B.6. Compliance Date

Submit a technical report, acceptable to the Executive Officer, documenting completion of necessary tasks concerning petroleum pollution identified in the Task B.6. workplan. For ongoing actions, such as soil vapor extraction or groundwater extraction, the report should document start-up as opposed to completion, with an estimate of remediation duration.

8. PROPOSED FINAL REMEDIAL ACTIONS AND PETROLEUM POLLUTION CLEANUP STANDARDS

COMPLIANCE DATE: Within 30 Days After Task B.7. Compliance Date

Submit a technical report, acceptable to the Executive Officer, containing:

- a. Evaluation of the installed interim remedial actions;
- b. Feasibility study evaluating alternative final remedial actions;
- c. Risk assessment for current and post-cleanup exposures;
- d. Recommended final remedial actions and cleanup standards;
- e. Implementation tasks and time schedule.

Item c should include projections of cost, effectiveness, benefits, and impact on public health, welfare, and the environment of each alternative action.

Items a through c should be consistent with the guidance provided by Subpart F of the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Part 300), CERCLA guidance documents with respect to remedial investigations and feasibility studies, Health and Safety Code Section 25356.1(c), and State Board Resolution No. 92-49 as amended ("Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304").

Item e should consider the preliminary cleanup goals for soil and groundwater identified in finding 21 and should address the attainability of background levels of water quality (see finding 18).

9. SITE STATUS REPORTS

COMPLIANCE DATE: Quarterly reports beginning at least 90 days prior to proposed date of property transfer

Submit Quarterly Site Status Reports, acceptable to the Executive Officer, that provide data with an analysis of how the work completed in the past quarter complies with this

Order and a schedule of the work planned for the next quarter. The reports shall be signed under penalty of perjury.

10. DELAYED COMPLIANCE: If the Navy is delayed, interrupted or prevented from meeting one or more of the completion dates specified in this Order, the Navy shall promptly notify the Executive Officer. If, for any reason, the Navy is unable to perform any activity or submit any document within the time required under this Order, the Navy shall make a written request for a specified extension of time. The extension request shall include a justification for the delay, and shall be submitted in advance of the date on which the activity is to be performed or the document is due.

C. ALTERNATIVE TASKS FOR PARCELS TRANSFERRED FROM THE NAVY BEFORE CLEANUP IS COMPLETED, RELATING TO THE EETP, TO BE UNDERTAKEN BY LMI

1. IDENTIFICATION OF REMAINING SOURCES

COMPLIANCE DATE: November 30, 2002

Submit Site Identification Technical Reports, acceptable to the Executive Officer, for each Investigation Area (IA) (plus a single sitewide Technical Report focusing on the fuel oil pipeline (FOPL) segments in the EETP). These Technical Reports shall identify sites of environmental concern, including UST and FOPL petroleum sites that are or are not addressed in the DTSC Consent Agreement, and are subject to this Order.

2. EETP TASK SCHEDULE

COMPLIANCE DATE: December 31, 2002

Submit a detailed schedule, acceptable to the Executive Officer, for the remaining work at the UST and FOPL sites identified in Task C.1 (hereinafter, EETP Task Schedule). No such sites are known or suspected to exist in IA D2; therefore, IA D2 will not be addressed in the EETP Task Schedule. The final end dates contained in the EETP Task Schedule shall correspond to the dates specified for completion of Task C.10 in Tables 1 and 2, or earlier dates if agreed upon by the Board.

3. SITE CLOSURE SUMMARY REPORTS

COMPLIANCE DATE: As specified by IA in Tables 1 and 2 for sites identified for closure in Task C.1. For those sites identified through Tasks C.4 and C.5, within 60 days of completion of Task C.5

Submit Site Closure Summary Reports for those UST and FOPL sites where investigation, characterization, and remediation, if any, are complete.

4. WORK PLAN(S) FOR LIMITED INVESTIGATION

COMPLIANCE DATE: As specified by IA in Tables 1 and 2

Submit Work Plan(s) for Limited Investigation, acceptable to the Executive Officer, to explore the potential for a release of petroleum pollution at UST and FOPL sites where a release is suspected but has not been confirmed.

5. COMPLETION OF LIMITED INVESTIGATION

COMPLIANCE DATE: As specified by IA in Tables 1 and 2

Complete a Limited Investigation to explore the potential for a release of petroleum pollution at UST and FOPL sites where a release is suspected but has not been confirmed. Compliance dates for the completion of the Limited Investigation of UST and FOPL sites are specified by IA in Tables 1 and 2.

6. WORK PLAN(S) FOR INVESTIGATION / CHARACTERIZATION OF THE NATURE AND EXTENT OF PETROLEUM POLLUTION

COMPLIANCE DATE: In accordance with the Board approved EETP Task Schedule required in Task C.2

Submit Work Plans, acceptable to the Executive Officer, in compliance with the EETP Task Schedule, for UST and FOPL sites in each IA. The purpose of these Work Plans is to define the vertical and lateral extent of soil and groundwater petroleum pollution. The petroleum screening criteria used to determine if additional sampling and analysis is necessary may be based upon the December 2001 update to Risk-Based Screening Levels for Impacted Soil and Groundwater (Board staff, December 26, 2001). The Work Plans shall specify investigation methods and a proposed time schedule.

Work Plans shall be submitted for those sites identified in Task C.1 as requiring characterization under this Task and also those additional sites identified through

Tasks C.4 and C.5 as having a release of petroleum pollution that requires characterization in accordance with this Task.

7. COMPLETION OF SITE CHARACTERIZATION OF THE NATURE AND EXTENT OF PETROLEUM POLLUTION

COMPLIANCE DATE: As specified by IA in Tables 1 and 2

Implement the Work Plans as identified in Task C.6. Submit Site Characterization Reports for the UST sites and FOPL segments, acceptable to the Executive Officer, in compliance with the EETP Task Schedule. These technical reports shall document completion of the necessary tasks identified in Task C.6 and shall include a hard copy of the Site Summary Form and the electronic submittal for incorporation into the Board database. These technical reports shall evaluate the petroleum sites identified in Task C.1 or Task C.6 to determine if any require Remedial Action, potentially including Interim Remedial Action. A "relative risk-based approach", based on the Board guidelines provided in the "Supplemental Instructions to State Water Board December 8, 1995, Interim Guidance on Required Cleanup at Low Risk Fuel Sites" (January 5, 1996), shall be considered to evaluate whether petroleum UST sites and FOPL segments and other potential petroleum sites require Interim Remedial Action prior to closure.

8. INTERIM REMEDIAL ACTION WORKPLAN FOR PETROLEUM POLLUTION

COMPLIANCE DATE: As specified by IA in Tables 1 and 2

For sites identified as requiring an Interim Remedial Action in a Site Characterization Report prepared pursuant to task C.7, submit a Work Plan(s) acceptable to the Executive Officer, in compliance with the EETP Task Schedule for the site(s) identified as requiring an Interim Remedial Action. The Work Plan(s) will evaluate interim petroleum pollution remedial action alternatives and recommend one or more alternatives for implementation. Work may be phased to allow the investigation to proceed efficiently. If groundwater extraction is selected as an Interim Remedial Action, then one task will be the completion of an NPDES permit application for discharge of extracted, treated groundwater to waters of the State. The application must demonstrate that neither reclamation nor discharge to the sanitary sewer is technically or economically feasible.

9. COMPLETION OF INTERIM REMEDIAL ACTIONS FOR PETROLEUM POLLUTION

COMPLIANCE DATE: As specified by IA in Tables 1 and 2

For those sites that required an Interim Remedial Action, submit a technical report, acceptable to the Executive Officer, in compliance with the EETP Task Schedule. The technical report will document completion of necessary tasks concerning petroleum pollution identified in the Task C.8 Interim Remedial Action Work Plan(s). For ongoing actions, such as soil vapor extraction or groundwater extraction, the report should document start-up, as opposed to completion of the remedial action, with an estimate of remediation duration.

10. PROPOSED FINAL REMEDIAL ACTIONS AND PETROLEUM POLLUTION CLEANUP STANDARDS

COMPLIANCE DATE: As specified by IA in Tables 1 and 2

For those sites determined to require Remedial Action in the Site Characterization Report prepared pursuant to Task C.7, submit a technical report, acceptable to the Executive Officer, in compliance with the EETP Task Schedule, containing:

- i. Evaluation of any installed Interim Remedial Actions;
- ii. Feasibility study evaluating alternative Final Remedial Actions;
- iii. Risk assessment for current and post-cleanup exposures;
- iv. Recommended final remedial actions and cleanup standards;
- v. Implementation tasks and time schedule.

Item iii should include projections of cost, effectiveness, benefits, and impact on public health, welfare, and the environment of each alternative action.

Items i through iii should be consistent with the guidance provided by Subpart F of the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Part 300), CERCLA guidance documents with respect to remedial investigations and feasibility studies, Health and Safety Code Section 25356.1(c), and State Board Resolution No. 92-49 as amended ("Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304").

Item v should consider the preliminary cleanup goals for soil and groundwater identified in finding 21 and should address the attainability of background levels of water quality (see finding 18). In addition, the petroleum criteria provided in the December 2001 update to Risk-Based Screening Levels for Impacted Soil and Groundwater (Board staff, December 26, 2001) may be considered.

The evaluation of whether or not a UST site or FOPL segment or other potential petroleum site presents significant risk to human health or the environment shall be performed using a tiered risk analysis based on the appropriate methodology.

11. IMPLEMENTATION OF FINAL REMEDIAL ACTION PROPOSED IN TASK C.10

COMPLIANCE DATE: In accordance with the Board approved EETP Task Schedule required in Task C.2

Implement the final remedial action proposed in Task C.10.

12. SITE STATUS REPORTS

Submit Quarterly Site Status Reports, starting the first Friday of the month after 90 days following the title transfer of the EETP, acceptable to the Executive Officer, that provide an analysis of how the work completed in the past quarter complies with this Order and a schedule of the work planned for the next quarter. The reports shall be signed under penalty of perjury.

- 13. DELAYED COMPLIANCE:** If LMI is delayed, interrupted or prevented from meeting one or more of the completion dates specified in this Order, including those dates specified in the Task C.2 submittal, LMI shall promptly notify the Executive Officer. If, for any reason, LMI is unable to perform any activity or submit any document within the time required under this Order, LMI shall make a written request for a specified extension of time. The extension request shall include a justification for the delay, and shall be submitted in advance of the date on which the activity is to be performed or the document is due.

Table 1 -- USTs

Investigation Areas							
	A3	B	C1	C2	C3	D1	H2
Task C.1 ID Sources				November 30, 2002			
Task C.2 Compliance Schedule	—			December 31, 2002			
Task C.3 Site Closure Summary Reports	December 31, 2002	For applicable sites, February 28, 2003	For applicable sites, March 31, 2003	For applicable sites, March 31, 2003	For applicable sites, February 28, 2003	For applicable sites, December 31, 2002	For applicable sites, January 31, 2003
Task C.4 WP for Limited Investigation of Petroleum Pollution	—	For applicable sites, March 31, 2003	For applicable sites, April 30, 2003	For applicable sites, April 30, 2003	For applicable sites, March 31, 2003	For applicable sites, December 31, 2002	For applicable sites, February 28, 2003
Task C.5 Complete Limited Investigation of Petroleum Pollution	—	For applicable sites, within 60 days of Board approval of the Task C.4 submittal	For applicable sites, within 60 days of Board approval of the Task C.4 submittal	For applicable sites, within 60 days of Board approval of the Task C.4 submittal	For applicable sites, within 60 days of Board approval of the Task C.4 submittal	For applicable sites, within 30 days of Board approval of the Task C.4 submittal	For applicable sites, within 30 days of Board approval of the Task C.4 submittal
Task C.6 WP for Characterization of Petroleum Pollution	—		In accordance with the Board approved EETP Task Schedule submittal required under Task C.2				
Task C.7 Complete Site Characterization of Petroleum Pollution	—	For applicable sites, within 150 days of Board approval of the Task C.6 submittal	For applicable sites, within 150 days of Board approval of the Task C.6 submittal	For applicable sites, within 180 days of Board approval of the Task C.6 submittal	For applicable sites, within 90 days of Board approval of the Task C.6 submittal	For applicable sites, within 60 days of Board approval of the Task C.6 submittal	For applicable sites, within 90 days of Board approval of the Task C.6 submittal
Task C.8 Interim Remedial Action Workplan for Petroleum Pollution	—	For applicable sites, within 90 days of Board approval of the Task C.7 submittal	For applicable sites, within 90 days of Board approval of the Task C.7 submittal	For applicable sites, within 120 days of Board approval of the Task C.7 submittal	For applicable sites, within 60 days of Board approval of the Task C.7 submittal	For applicable sites, within 60 days of Board approval of the Task C.7 submittal	For applicable sites, within 60 days of Board approval of the Task C.7 submittal
Task C.9 Complete Interim Remedial Action for Petroleum Pollution	—	For applicable sites, within 120 days of Board approval of the Task C.8 submittal	For applicable sites, within 90 days of Board approval of the Task C.8 submittal	For applicable sites, within 150 days of Board approval of the Task C.8 submittal	For applicable sites, within 90 days of Board approval of the Task C.8 submittal	For applicable sites, within 60 days of Board approval of the Task C.8 submittal	For applicable sites, within 90 days of Board approval of the Task C.8 submittal
Task C.10 Proposed Final Remedial Action and Cleanup Standards	December 31, 2002	July 31, 2004	May 31, 2004	October 31, 2004	January 31, 2004	July 31, 2003	November 30, 2003
Task C.11 Implementation of Final Remedial Action	—		In accordance with the Board approved EETP Task Schedule submittal required under Task C.2				

Table 2 -- FOPLs

Investigation Areas							
	A3	B	C1	C2	C3	D1	H2
Task C.1 ID Sources	No FOPL Sites	November 30, 2002	November 30, 2002	November 30, 2002	No FOPL Sites	November 30, 2002	No FOPL Sites
Task C.2 Compliance Schedule	—	December 31, 2002	December 31, 2002	December 31, 2002	—	December 31, 2002	—
Task C.3 Site Closure Summary Reports	—	For applicable segments, February 28, 2003	For applicable segments, March 31, 2003	For applicable segments, April 30, 2003	—	For applicable segments, December 31, 2002	—
Task C.4 WP for Limited Investigation of Petroleum Pollution	—	For applicable segments, March 31, 2003	For applicable segments, April 30, 2003	For applicable segments, May 31, 2003	—	For applicable segments, December 31, 2002	—
Task C.5 Complete Limited Investigation of Petroleum Pollution	—	For applicable segments, within 60 days of Board approval of the Task C.4 submittal			—	For applicable segments, within 30 days of Board approval of the Task C.4 submittal	—
Task C.6 WP for Characterization of Petroleum Pollution	—	In accordance with the Board approved EETP Task Schedule submittal required under Task C.2			—	In accordance with the Board approved EETP Task Schedule submittal required under Task C.2	—
Task C.7 Complete Site Characterization of Petroleum Pollution	—	For applicable segments, within 150 days of Board approval of the Task C.6 submittal	For applicable segments, within 150 days of Board approval of the Task C.6 submittal	For applicable segments, within 180 days of Board approval of the Task C.6 submittal	—	For applicable segments, within 60 days of Board approval of the Task C.6 submittal	—
Task C.8 Interim Remedial Action Workplan for Petroleum Pollution	—	For applicable segments, within 90 days of Board approval of the Task C.7 submittal	For applicable segments, within 90 days of Board approval of the Task C.7 submittal	For applicable segments, within 120 days of Board approval of the Task C.7 submittal	—	For applicable segments, within 60 days of Board approval of the Task C.7 submittal	—
Task C.9 Complete Interim Remedial Action for Petroleum Pollution	—	For applicable segments, within 120 days of Board approval of the Task C.8 submittal	For applicable segments, within 90 days of Board approval of the Task C.8 submittal	For applicable segments, within 150 days of Board approval of the Task C.8 submittal	—	For applicable segments, within 60 days of Board approval of the Task C.8 submittal	—
Task C.10 Proposed Final Remedial Action and Cleanup Standards	—	July 31, 2004	May 31, 2004	October 31, 2004	—	July 31, 2003	—
Task C.11 Implementation of Final Remedial Action	—	In accordance with the Board approved EETP Task Schedule submittal required under Task C.2			—	In accordance with the Board approved EETP Task Schedule submittal required under Task C.2	—

D. PROVISIONS

1. **No Nuisance:** The storage, handling, treatment, or disposal of polluted soil or groundwater shall be conducted in a manner such that it would not create a nuisance as defined in California Water Code Section 13050(m).
2. **Good Operation and Maintenance (O&M):** The Navy and LMI shall maintain in good working order and operate, as efficiently as possible, any facility or control system installed to achieve compliance with the requirements of this Order.
3. **Reimbursement:** The Navy, and LMI with respect to the EETP, will pay the full costs incurred by the Regional Board in monitoring and enforcing cleanup at this site and for oversight of this Order.
4. **Access to Site and Records:** In accordance with California Water Code Section 13267(c), the Navy and LMI shall permit the Board or its authorized representative:

Entry upon premises in which any pollution source exists, or may potentially exist, or in which any required records are kept, that are relevant to this Order.

Access to copy any records required to be kept under the requirements of this Order.

Inspection of any monitoring or remediation facilities installed in response to this Order.

Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the Navy or LMI.

5. **Contractor / Consultant Qualifications:** All technical documents shall be signed by and stamped with the seal of a California registered geologist, a California certified engineering geologist, or a California registered civil engineer.
6. **Lab Qualifications:** State-certified laboratories, or laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed, shall analyze all samples. All laboratories shall maintain quality assurance/quality control (QA/QC) records for Board review. This provision does not apply to analyses that can only reasonably be performed on-site (e.g. temperature).

7. **Document Distribution:** Copies of all correspondence, technical reports, and other documents pertaining to compliance with this Order shall be provided to the following agencies:

- a. MINSY Public Repository, JFK Library, 505 Santa Clara St., Vallejo, CA.
 - b. City of Vallejo, Department of Community Development, Vallejo, CA.
 - c. MINSY Restoration Advisory Board Library, Building 535, Mare Island, Vallejo CA (2 copies).
 - d. Cal/EPA-Department of Toxic Substances Control, Berkeley, CA.
 - e. U.S. Environmental Protection Agency, Region 9, San Francisco, CA.
 - f. California Regional Water Quality Control Board, Region 2, Oakland, CA.
- [The Executive Officer may modify this distribution list as needed.]

8. **Reporting of Changed Owner or Operator:** The Navy, and LMI with respect to the EETP, shall notify the Board of any changes in site ownership associated with the property described in this Order within fifteen (15) days of the date of the change.

9. **Reporting of Hazardous Substance Release:** If any hazardous substance or petroleum is discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State, the property owner (the Navy or LMI) shall report such discharge to the Regional Board by calling (510) 622-2300 during regular office hours (Monday through Friday, 8:00 AM to 5:00 PM).

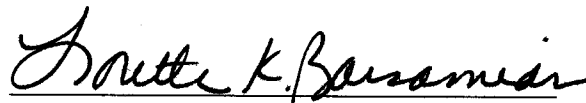
A written report shall be filed with the Board within five (5) working days. The report shall describe: the nature of the hazardous substance, estimated quantity involved, duration of incident, cause of release, estimated size of affected area, nature of effect, corrective actions taken or planned, schedule of corrective actions planned, and persons/agencies notified.

This reporting is in addition to the reporting to the Office of Emergency Services required pursuant to the Health and Safety Code.

10. **Rescission of Existing Order:** This Order supercedes and rescinds Order No. 00-132.

11. **Periodic SCR Review:** The Board will review this Order periodically and may revise it when necessary. The Navy or LMI may request revisions and upon review, the Executive Officer may recommend that the Board revise these requirements.

I, Loretta K. Barsamian, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on October 16, 2002.



Loretta K. Barsamian

Executive Officer

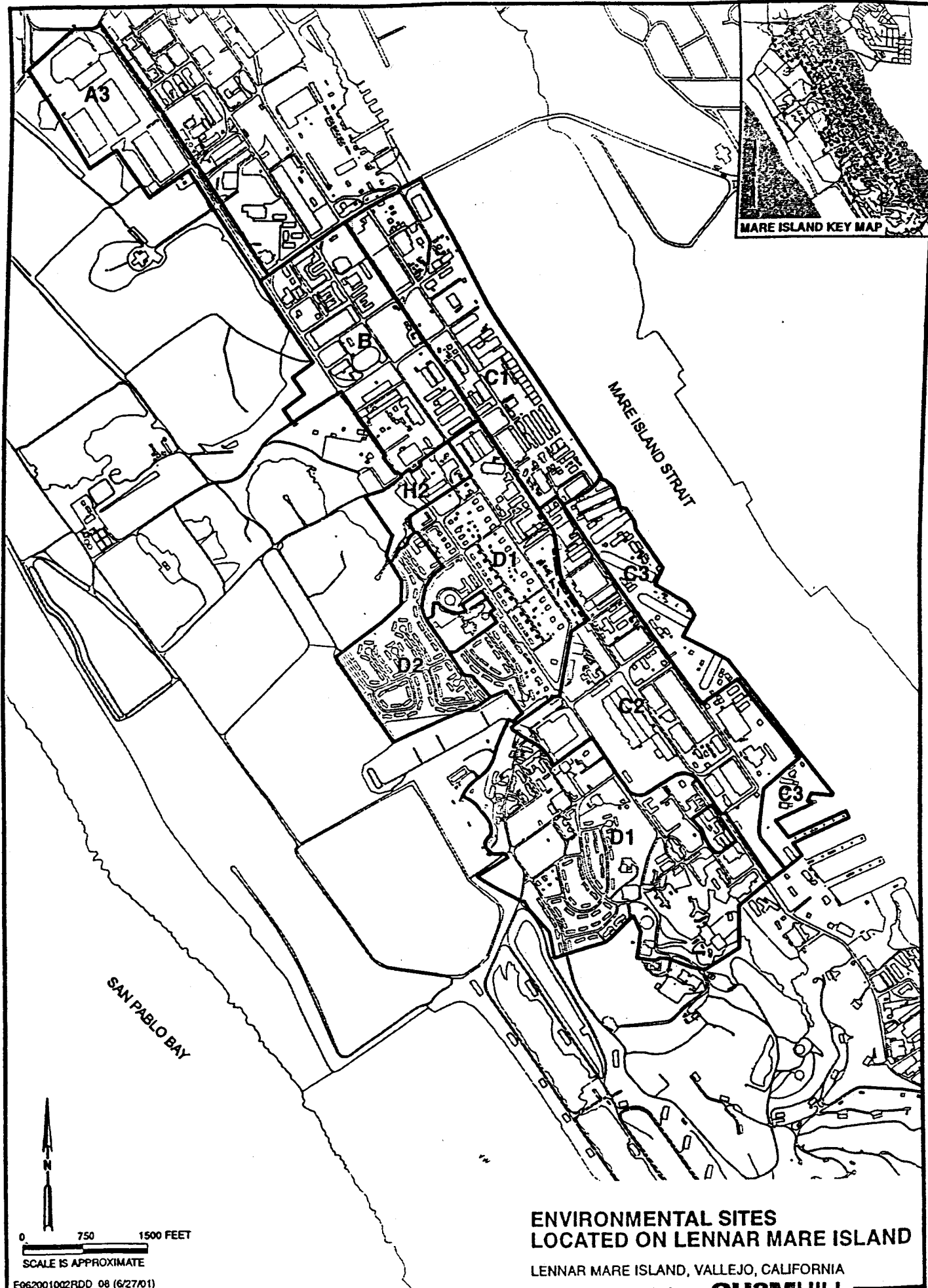
FAILURE TO COMPLY WITH THE REQUIREMENTS OF THIS ORDER MAY
SUBJECT YOU TO ENFORCEMENT ACTION, INCLUDING BUT NOT LIMITED
TO: IMPOSITION OF ADMINISTRATIVE CIVIL LIABILITY UNDER WATER
CODE SECTIONS 13268 OR 13350, OR REFERRAL TO THE ATTORNEY
GENERAL FOR INJUNCTIVE RELIEF OR CIVIL OR CRIMINAL LIABILITY

Attachment A: Mare Island Naval Shipyard, Site Vicinity Map

Attachment B: Investigation Areas within the Eastern Early Transfer Parcel (EETP)

Attachment A
Mare Island Naval Shipyard Site Location Map

Attachment B
Investigation Areas within the Eastern Early Transfer Parcel



**ENVIRONMENTAL SITES
LOCATED ON LENNAR MARE ISLAND**

LENNAR MARE ISLAND, VALLEJO, CALIFORNIA

CH2MHILL